

7. SAMPLING, TREATMENT, AND DISPOSAL

This section describes the sampling, treatment, and disposal of cylinders removed from CPP-84. Soil sampling at CPP-84 and CPP-94 is also required to verify that COPCs have been removed by the remedial action. Backfill and regrading operations will follow confirmation of contaminant removal.

Sampling of all cylinders will likely be required due to the uncertainty of using external characteristics to define cylinder contents. Toxic gas cylinders are not expected to be recovered from CPP-84 and cylinder contents can either be thermally oxidized (for flammable gases) or vented to the atmosphere (for inert gases). The disposal of cylinders after treatment is dependent on cylinder contents. Prior to sending wastes to an off-Site (off of the INEEL) storage, treatment, or disposal facility, a suitable assessment will be performed in accordance with 40 CFR 300.440.

7.1 Objectives and Approach

The objective of cylinder sampling is to determine the contents of each of the cylinders. This is a fundamental requirement since knowledge of cylinder content is required prior to treatment (venting or flaring) or off-Site transportation. CGA P-22 offers the following guidance:

“Any inconsistency, question, or lack of knowledge about the cylinder is cause for requiring positive identification through sampling and analysis . . . Equipment used for sampling cylinder contents should be rated for the maximum pressure which could be in the cylinder with a suitable safety factor applied for potentially over-pressurized containers.”

After cylinder contents are identified using an onsite laboratory, treatment methods can be determined. Figure 7-1 provides a cylinder sampling and treatment flow chart that summarizes sampling and treatment options. These options include onsite operations (venting and flaring) and off-Site treatment.

Soil data will be collected at CPP-84 and CPP-94 at the conclusion of cylinder removal activities. The purpose of this data collection effort is to provide a characterization of the excavation bottom. Soil samples will be collected and analyzed for COPCs at an off-Site laboratory. Details of this soil sampling are provided in the *Preliminary Characterization Plan for OU 3-13, Group 6, RD/RA Buried Gas Cylinders Sites: CPP-84 and CPP-94* (DOE-ID 2001a) (Attachment 1).

7.2 Cylinder Sampling

Cylinder sampling techniques are based solely on cylinder and valve integrity. For cylinders with operable valves, a remotely operated system, the VSS will be used. This system allows the operator to remotely view the sampling operation using video equipment. For cylinders that are in poor condition or with inoperable valves, the CRV will be used. The CRV is a remotely operated, pressure-rated vessel that is housed within in a secondary containment chamber for the containment of fugitive gases. The cylinder is pierced within the CRV, allowing the contents of the cylinder to be sampled and analyzed.

7.2.1 Valve Sampling Station (VSS)

The VSS is designed to provide remote valve sampling capabilities for compressed gas cylinders with operable valves. The unit consists of a 54-in. x 54-in. x 84-in. containment structure, which is constructed of 1/4-in.-thick steel plate which is trailer- or vehicle-mounted. Other components of the

system include a secondary containment structure, remote valve opening capabilities, video equipment, and emergency treatment capabilities. Figure 7-2 provides a schematic of the VSS. Complete process engineering diagrams and operating procedures will be available at the job site.

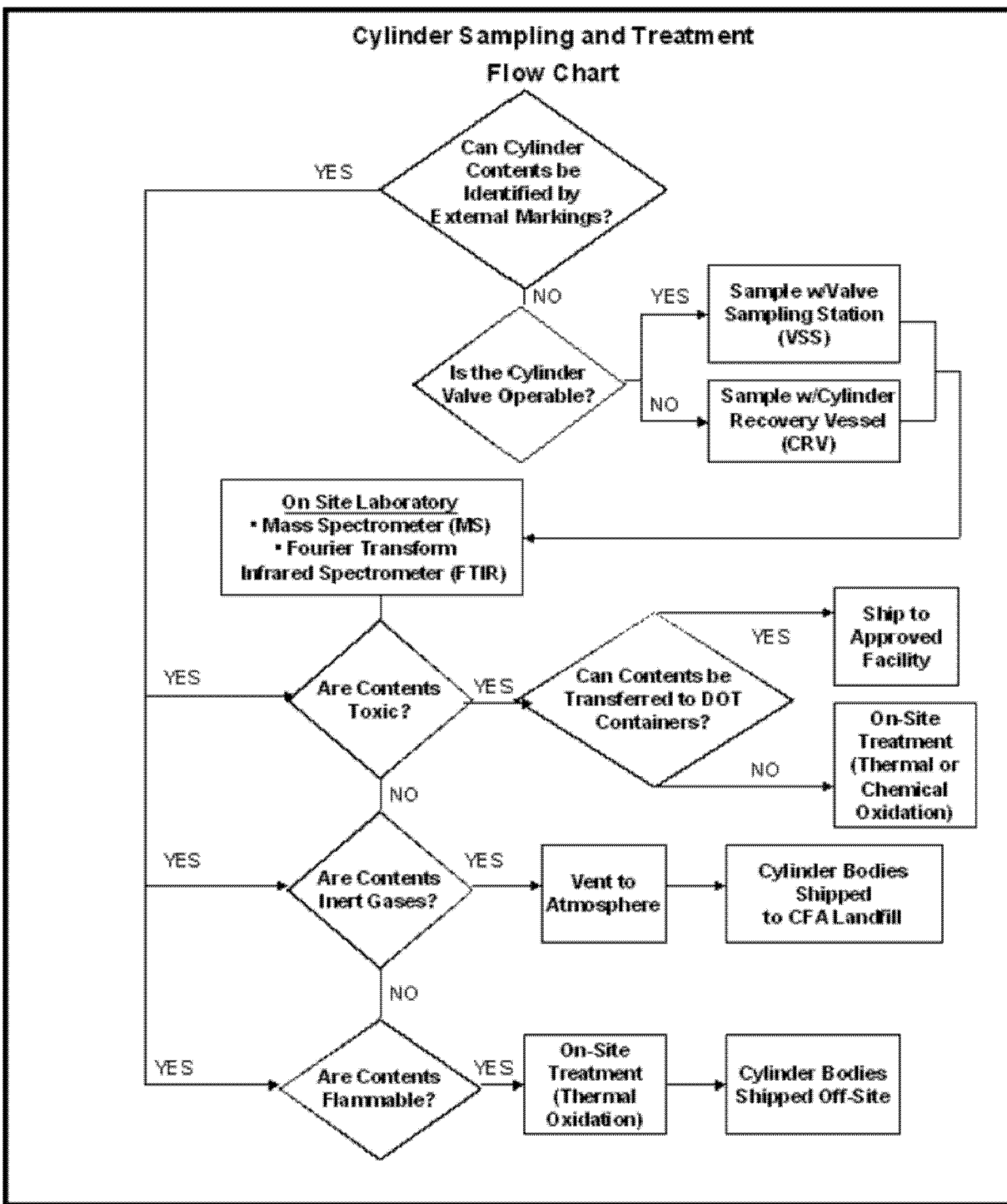


Figure 7-1. Cylinder sampling and treatment flow chart.

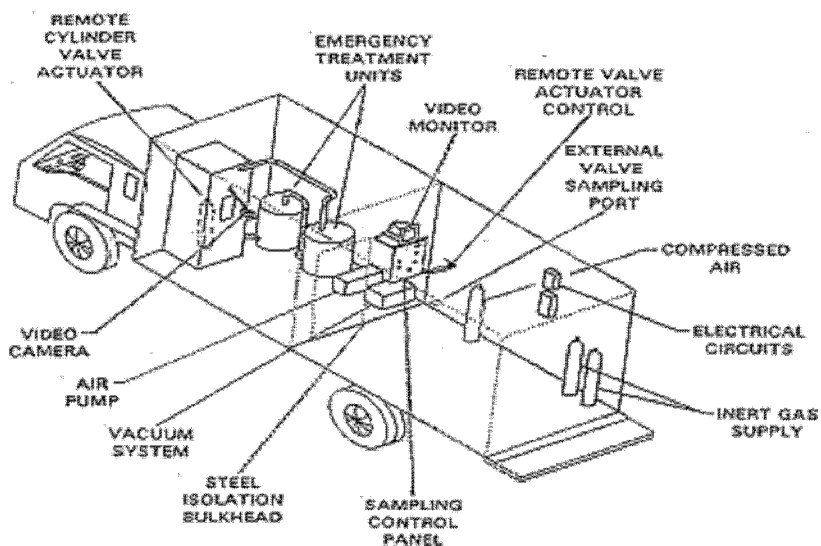


Figure 7-2. Schematic of the VSS.

7.2.2 Cylinder Recovery Vessel (CRV)

The CRV is designed to sample liquids and gases in cylinders that cannot be accessed through the valve or because the cylinder is deteriorated and/or in unstable condition. The CRV provides a remotely operated system to release typical cylinder contents into a controlled, contained environment. After sampling and analysis of cylinder contents, the material can be transferred to a new container or disposed through various treatment processes. Figures 7-3 and 7-4 provide a photograph and a schematic of the CRV.

The CRV door is hydraulically operated and contains two o-rings that provide a vapor-tight seal to the outside environment. As the cylinders are loaded into the unit and supported on a specially designed equipment rack, a spring mechanism holds the cylinder in position in the center of the vessel. The cylinder is accessed by either shooting a nitrogen-powered steel projectile through the cylinder wall or using a tapping device. Once the cylinder has been pierced, sampling is completed through a sample port for analysis at the onsite laboratory. Complete process engineering diagrams and operating procedures will be available at the job site.

7.2.3 Sample Analysis

Analysis of cylinder contents will be performed by two methods: (1) FTIR or (2) MS. The infrared spectrum contains characteristics that permit identification of functional groups, or “working parts” of molecules. Through the use of an interferometer, infrared wavelengths are passed through a sample simultaneously. A laser is used to align the optics used in the process.

The FTIR will be used to qualitatively identify cylinder contents through a comparison of spectra with library references. Spectral libraries are maintained with the laboratory computer. Computer libraries are supplemented by several standard hard-copy references. The FTIR is applicable for all but elemental gases (oxygen, nitrogen, etc.). For elemental gases, the MS is the preferred method of analysis.

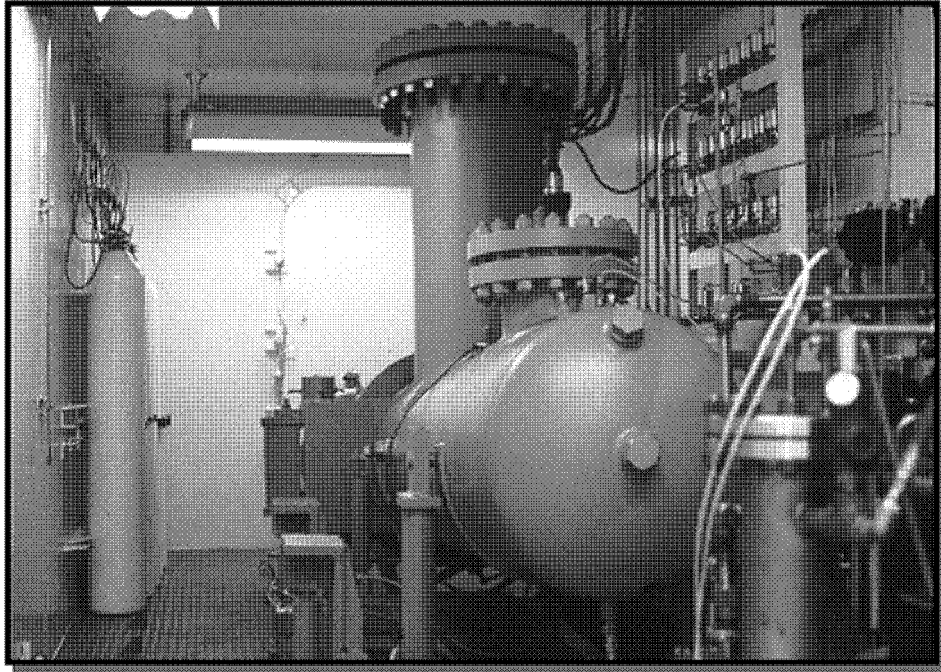


Figure 7-3. Photograph of CRV.

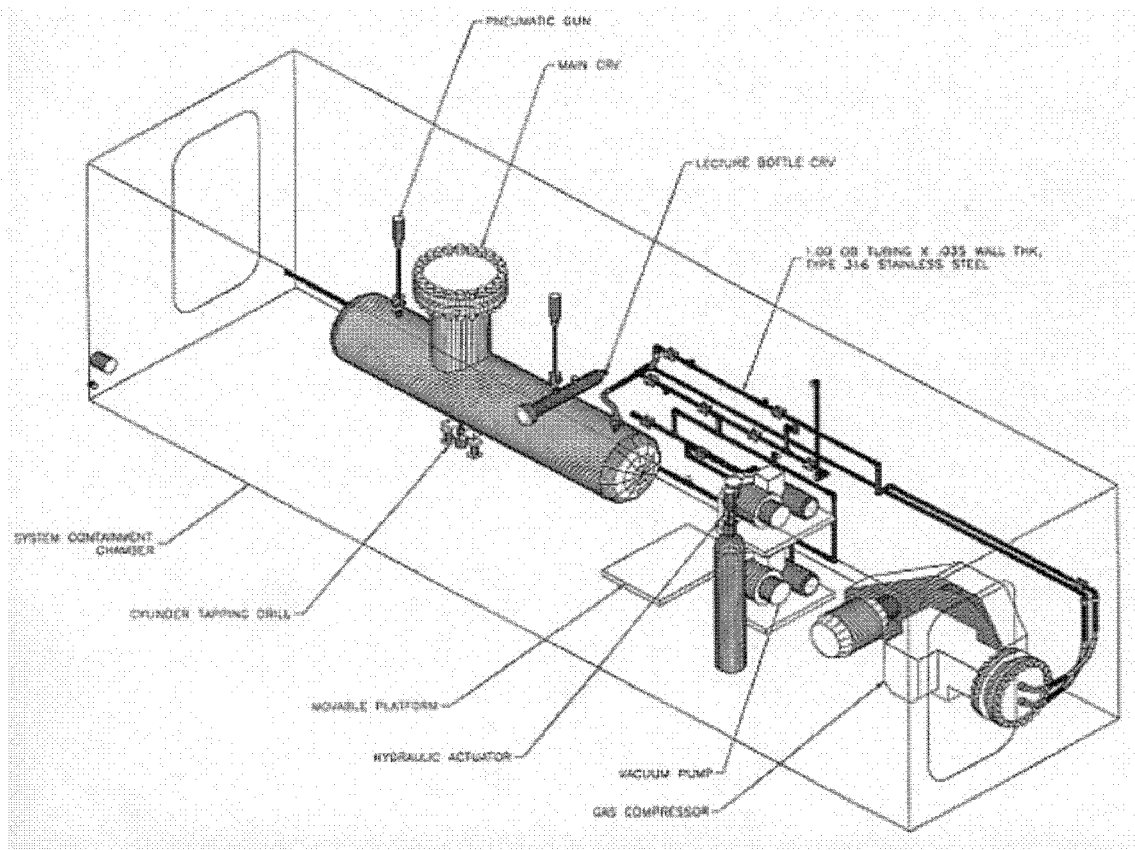


Figure 7-4. Schematic of CRV.

The MS is a vacuum analyzer, which will measure total and partial pressures. The analyzer is a quadrupole mass spectrometer that is capable of separating ions formed in an electron impact source according to the mass-to-charge ratio. The signal collector is either a Faraday Cup or Secondary Emission Multiplier.

The QA/QC procedures used for the instruments will be used only on qualitative analyses. Sample folders will be developed for each cylinder processed. Both the FTIR and MS are computer-supported and calibration/analyses data will be stored at the site on diskette. A hard copy of the spectrum will also be obtained and stored with project records. General items provided in the sample folders include sample identification number, date and time of analysis, and cylinder inspection log reference. Table 7-1 provides a summary of the specific calibration and operation data for each instrument.

7.2.4 Fourier Transform Infrared Spectrometer

Mathematical manipulation of the interference data allows identifying characteristics to be developed. Software used with the FTIR facilitates matching of spectra against various libraries of more than 15,000 compounds. The spectrum is mathematically converted to absorbance. The absorbance spectrum is then compared to those contained in the reference libraries.

Several FTIR spectral libraries are maintained on the laboratory computer. These include the 3,000 compound EPA Vapor Phase Library, a gas library, and Aldrich's library of compounds (30,000 compounds). Database searches are conducted with Sprouse Scientific Search software. The computer libraries are supplemented by several standard reference books.

The FTIR will be checked daily for operability in accordance with the equipment manual. A polystyrene film is used for calibration and checked against three principal peaks (702, 1602, 3025 cm^{-1}). The QA/QC plan for the mobile laboratory specifies the frequency and limits of calibration.

7.2.5 Mass Spectrometer (MS)

The MS to be used at the site can identify compounds between 1 and 300 a.m.u. This will cover the range of elemental gases that are not identifiable with the FTIR. It will be calibrated at the beginning and end of each day using bromofluorobenzene (BFB) as a standard.

Mass spectrums for each sample are shown as peaks. A hard copy and electronic copy are provided for each analysis. The spectrum is then compared with library spectra for aiding identification. MS data are compared to a proprietary library of compiled cracking patterns (0 to 200 a.m.u.). The library contains both mass data and peak intensities for approximately 50,000 compounds.

Table 7-1. Specific calibration and operation data.

FTIR	MS
Wavelength tune spectrum	Argon tune
Wavelength tune check (polystyrene)	BFB start analog plot and form
Spectrum and form	
Plots of blanks and sample spectra	BFB end analog plot and form
Wavelength and tune checks (end of day) spectrum and form	Interpretation and reference spectra
Interpretation and computer match	Analog plots of blanks and sample

Spectra selected from the search are compared with known chemical characteristics of the sample gas. In some cases, physical observations obtained during sampling can confirm the interpretation. Both MS and FTIR spectra are contained in the Chemical Information System database. This computerized database can be accessed on-line.

7.3 Treatment of Cylinder Contents

Analysis will confirm whether the gases contained in the cylinders are common industrial gases typically associated with construction operations. Following laboratory confirmation of cylinder contents, the industrial gases will be disposed of by either controlled venting or flaring. These treatment processes will render the cylinders as being empty in accordance with the definition of 40 CFR 261.7(b)(2). If cylinders contain gases other than the expected construction gases, they will either be treated on-site or be shipped to an appropriate off-site facility.

7.3.1 Treatment of Anticipated Gases

Controlled venting of the contents is an option suitable for inert or innocuous materials. Typically these are common components of air. These atmospheric gases include air, argon, carbon dioxide, oxygen, helium, and nitrogen. The primary hazard associated with these gases is concentration in a confined area. Controlled and monitored venting will permit these to be released without further processing.

Acetylene is the only anticipated flammable gas to be encountered during the removal action. Cylinders containing acetylene will be treated via thermal oxidation. The feed rate of the acetylene gas will be monitored as well as the surrounding areas to ensure that excessive pressure is not built up in the system and no explosive atmospheres are created.

The techniques used to vent inert gases or thermal oxidize the acetylene are essentially the same and use the same equipment. Gases will be vented through an established flare stack. The flare stack consists of lines (1-in. diameter or less) connecting the sampling device with an industrial burner and pilot light. A flash arrestor will be installed in the line prior to the burner to prevent flushing back to the ignition source. The stack will be located at least 50 ft from any source of ignition other than the associated pilot flame. A clear zone of the same radius will be maintained during the processing. The flame will be fueled from a propane cylinder located outside of the clear zone. A fire watch will be maintained from the start of venting until 30 min after the flaring is concluded. The clear zone shall be delineated to prevent unauthorized personnel from entering the area while a flame is present or while the burner is still hot. Perimeter monitoring will occur for LEL, percent oxygen, and SO₂. The venting and flaring requires evacuation and purge cycles to assure that residual gases are removed from each container. General operating procedures are as follows:

1. Identify personnel
 - a. Trained operator to feed the gas
 - b. Trained watch to observe the burner/outlet
2. Conduct preoperational checks
 - a. Pressure test and inspect the feed and burner system
 - b. Compare each cylinder to the analytical results to verify contents

- c. Inspect the fuel supply system for secure fittings, condition, and proper pressure regulator adjustment
- 3. Establish safety systems
 - a. Establish radio communications between operator and watch
 - b. Provide fire extinguisher at watch location
 - c. Exclude flammable materials from the area
- 4. Conduct treatment operations
 - a. Notify watch the feeding will commence
 - b. Open valves to feed gas
 - c. Monitor system pressure to ensure it is maintained within established limits
 - d. Continue feed until cylinder pressure reaches atmospheric
 - e. Evacuate feed lines
 - f. Purge system with nitrogen
- 5. Conduct post-treatment activities
 - a. Continue watch for 30 min after completion of treatment
 - b. Dispose of empty cylinders in accordance with the *Waste Munugement Plan*.

7.3.2 Treatment of Non-Anticipated Gases

Although it is unlikely that other gases will be encountered during this project, treatment options for nonanticipated gases require identification. If other gases are retrieved, they will be managed and treated on a case-by-case basis depending on the characteristics of the gas. These gases may be treated onsite or sent to an appropriate off-Site facility for treatment and disposal.

Depending on the gas type, onsite treatment may be conducted using the venting or thermal oxidation described above, or by more complex catalytic or chemical oxidation technologies. Due to the large number of gases, it is not feasible to describe a detailed treatment process for every gas type. Table 7-2 describes suitable methods for managing a variety of common gas types that could be encountered.

7.4 Post-Removal Characterization Activities

Post-removal characterization activities at CPP-84 and CPP-94 consist of (1) soil sampling to estimate the average concentrations of COPCs in the excavation and, if needed, the spoil pile and (2) a confirmation magnetic field survey. Based on the DQOs of this project, a simple random sampling design (utilizing composite samples) will be used for locating sampling locations (Table 3-2). The design

Table 7-2. Treatment methods for non-anticipated compressed gases. (DLA 1990)

Gas	Treatment
Anhydrous ammonia	Convert to ammonium nitrate by passing vapors into nitric acid solution
Chlorine	Neutralize by passing vapors into 18–20 % sodium hydroxide solution
Dimethylamine	Neutralize by passing vapors into a nitric acid solution
Ethyl chloride	Neutralize by passing vapors into sodium hydroxide solution
Hydrogen chloride	Neutralize by passing vapors into sodium hydroxide solution
Hydrogen sulfide	Neutralize by passing vapors into sodium hydroxide solution
Methyl bromide	Neutralize by passing vapors into sodium hydroxide solution
Methyl chloride	Neutralize by passing vapors into sodium hydroxide solution
Liquefied petroleum gas	Thermal oxidation
Phosgene	Neutralize by passing vapors into sodium hydroxide solution
Sulfur dioxide	Neutralize by passing vapors into sodium hydroxide solution

described in this section allows for estimating the variability (standard deviation) of the COPCs (if present) and also allows for comparing the COPCs against action levels using a student's t-test. The option to collect additional biased samples will be reserved if evidence (such as discoloration, staining, textural differences, odors) indicates contaminants could be present in an area that might otherwise be missed (e.g., spoil pile, excavation portions not containing cylinders). The following statistical parameters, sample frequency, and sampling techniques described in this section were established using EPA guidance:

- Confidence Level: 80%
- Minimum Detectable Difference: 30%
- Power: 90%
- Coefficient of Variation: 30%
- Five samples (plus 1 duplicate) from CPP-84 excavation and, if needed, samples from the spoil pile
- Five samples (plus 1 duplicate) from CPP-94 excavation and, if needed, samples from the spoil pile.

7.4.1 Sampling Design for Excavated Areas

7.4.1.1 Establish Sampling Grid. Using maps, the excavated areas will be divided into grids. Grid cell sizes will be determined in the field based on the size and distribution of the cylinder area. The following procedures will establish the sampling grid:

1. Measure the horizontal (x-y) extent of cylinder distribution in square feet (ft²). Assess the distribution of the cylinders on the horizontal plane. If there are significant gaps or distances between cylinders that would cause the sampling of > 1 grid cell that did not contain a cylinder (and there is no visual evidence of contamination), then do not include that area in the calculation

of cylinder distribution. The purpose is not to include large portions of the excavation in which no cylinders were present.

2. If the area of cylinder distribution is $<750 \text{ ft}^2$, then divide the site into a minimum of 30 equally sized grid cells.
3. If the area of the cylinder distribution is $>750 \text{ ft}^2$, then establish grid sizes of 25 ft^2 (e.g., $5 \times 5 \text{ ft}$).
4. After establishing the grid size and dividing the site into grid cells, assign a unique two digit number (01, 02...30) to each grid (if more than 99 grids are required, use a three-digit number)
5. Select five grid cells for sampling using a random number generator or table.
6. Document all activities, drawing, calculations, and measurements in the field logbook.

7.4.1.2 Collect Bulk Soil Samples. At each sampling grid, bulk quantities of soil will first be collected. Each sample will be a composite of five aliquots (i.e. sub samples, portions) using a '5 on die' design (see Figure 7-5). The following procedures describe how to collect the bulk soil samples (Pitard 1989):

1. At each composite location within a grid, use a disposable/dedicated spoon to collect surface samples (using the bottom of the excavation as the revised 0 datum point) from 0 to 2.5 cm (1 in.) of soil. Place the soil into a large sealable plastic bag (similar to Ziploc™) and label appropriately.

Note: For this project, soil is defined as particles $\leq 2 \text{ mm}$ in diameter and absent of gross size organic materials. If sieving is required, pass the soil through a pre-cleaned #10 (2 mm) sieve (#9 Tyler equivalent).

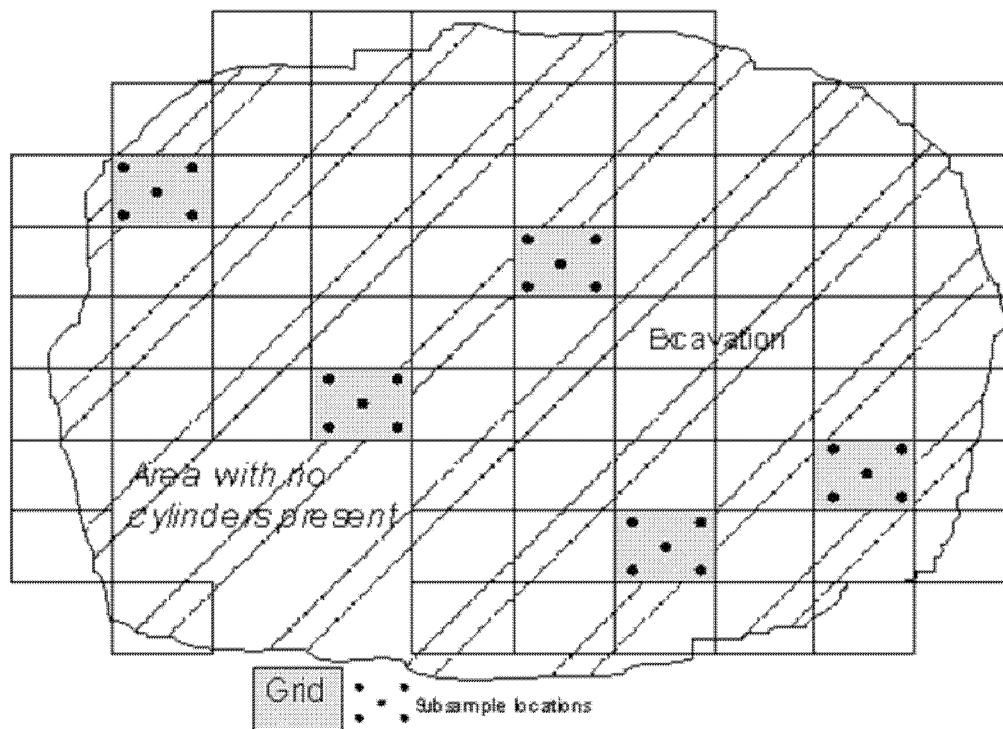


Figure 7-5. Hypothetical sampling grid.

2. For volatile organic compound (VOC) samples, place sample aliquots directly into the appropriate sample jar and fill to minimize headspace. The priority for minimizing the amount of time the soil is exposed to air outweighs the additional rigor on optimizing sample representativeness.
3. Estimate the amount of soil needed from each aliquot so that the bulk volume collected at each grid is about 50% more than the amount needed for filling analytical sample jars.

Note: For the duplicate sample, collect enough sample material to fill two sets of analytical sample jars.

4. Label the sealable plastic bags with the date, location, and sample number using an indelible marker, and keep the sample securely stored at 4°C until ready for sample processing.

7.4.1.3 Sample Processing. A one-dimensional incremental delimitation method will be used to process the bulk samples into individual analytical samples. The following describes the how to process the bulk soil samples:

1. Prepare the appropriate number and types of empty sample jars as required. Remember to prepare additional jars for the duplicate sample.
2. For each sample, line the bottom of a flat-bottom tray (e.g., cookie sheet, food tray) with new aluminum foil. Transfer the soil from a sealable plastic bag onto the tray and shape the soil into a flat rectangular pile with uniform thickness.
3. Using a disposable/dedicated flat-bottom spatula, collect increments across the soil pile and place them into the sample jars in a sequential fashion. Ensure that each spatula scoop encompasses the entire profile of the soil pile (i.e., include soil fines).
4. Reshape the soil pile as necessary to maintain uniformity. Use at least 25 to 30 increments to fill each jar. Continue until all sample jars are about 90% full.

Note: Because VOC samples are already collected directly into their sample jars in the field, no further sample processing is required.

1. Ensure all jars are labeled with all the necessary information for shipment to the laboratory. Securely maintain the sample at 4°C until ready for shipment to the analytical facility.

7.5 Disposal

The non-acetylene RCRA empty cylinders (40 CFR 261.7 [a] [1] and [b] [1]) meeting the *INEEL Waste Acceptance Criteria* (DOE-ID 2003) for industrial waste will be disposed at the INEEL Landfill Complex. These cylinders will be rendered useless through cutting, drilling, and/or valve removal. Acetylene cylinders are constructed with a porous filler (usually asbestos) and a solvent (acetone) to provide for safe operations. Due to environmental and waste management concerns regarding these substances, after the oxidation of the cylinder contents, the cylinder bodies will be transported to an off-Site disposal facility.

7.6 Backfilling

When verification sample results indicate that site contamination levels are within acceptable limits and the ER department approves the results, the excavated areas will be backfilled. Clean fill material

staged near the excavation will be placed in 8-in. loose lifts and compacted to approximately 90% of maximum dry density of the soil with heavy equipment (e.g., bulldozer and/or trackhoe). Figure 7-6 shows a backfilling operation. In the event that heavy equipment is too large to effectively provide compaction, smaller compaction equipment (such as walk-behind roller compactors, mechanical tampers, or vibratory plates) will be used. It may be necessary to add clean water at times to reach the necessary compaction.

All excavations will be surveyed prior to backfilling and restoration. Backfill material will support revegetation. When the original grade is restored, the disturbed areas will be revegetated with native species according to *Guidelines for Revegetation of Disturbed Sites at the INEL* (Anderson and Shumar 1989).



Figure 7-6. Backfilling operations

8. FIELD DOCUMENTATION

The primary objective of this section is to describe how field activities will be documented. Accurate and consistent documentation of field activities is essential to the success of the project. Documentation will be maintained in accordance with applicable management control procedures (MCPs) and other contractor documents. The FTL will be responsible for controlling and maintaining all field documents and records. In addition, a RA report is required to document the field activities. The RA report will be submitted 60 days after the final inspection by the Agencies as defined in the FFA/CO (DOE-ID 1991).

8.1 Audits

Audits of various field documents may be performed throughout the duration of the project. This will ensure documentation is sufficient and meets the requirements established in MCPs, and other applicable programs, procedures, and policies.

8.2 Logbooks

Field logbooks contain records of all activities related to onsite actions. Data recorded in logbooks include information on excavation activities, sampling, measurements taken, soil descriptions, cylinder locations, and observations or conditions that could affect the quality of data. Using logbook data, personnel should be able to reconstruct events that occurred during field activities. At a minimum, a field logbook should contain the following information:

- Modifications to activities or procedures described in planning documents
- Justifications for such modifications
- Unusual occurrences or circumstances
- Any audit findings and corrective actions implemented as a result of such findings.

All entries shall use nonsmearable, waterproof permanent ink (preferably black), they must be signed and dated, and all changes must be legible. Drawing a single line through the incorrect information and signing and dating the change make changes. Logbook control and use shall be in accordance with INEEL procedures.

Logbooks are issued to specified personnel who are then responsible for security and return of logbooks at the conclusion of the project. Original logbooks will become part of the project records and will be maintained by Administrative Records and Document Control (ARDC).

8.2.1 Field Team Leader's Daily Logbook

In addition to the elements listed above, the FTL logbook should contain the following:

- Description of field activities
 - Excavation inspections
- Visitor log

- List of site contacts
- Problems encountered.

This logbook will be signed and dated at the end of each day's sampling activities.

8.2.2 Sample Logbooks

Sample logbooks will be used by the sample team(s). Each sample logbook will contain information such as the following:

- Physical measurements
- All QC samples
- Sample information (sample IDs, sample location, sample collection information, analyses requested for each sample, and sample matrix)
- Shipping information (collection dates, shipping dates, cooler identification number, destination, COC number, and name of shipper).

8.2.3 Field Instrument Calibration/Standardization Logbook

A logbook containing records of calibration data will be maintained for each piece of equipment requiring periodic calibration or standardization. Equipment requiring calibration includes, but is not limited to, PID, explosivometers, magnetometers, radiological monitoring equipment, the FTIR, and MS. This logbook will contain log sheets to record the date, time, method of calibration, name of the calibrating individual, and instrument identification number.

8.3 Data Management and Inventory Control

Data management and inventory is an important aspect of field documentation. The *Data Munagement Plan*, provides additional detail about the management of analytical data.


8.3.1 Data Management

All original data collected in the field will be retained in accordance with Section 20.2 of the INEEL FFA/CO, DOE Order 200.1, and any other contractor document requirements. All data will be forwarded to ARDC as part of the project file or uploaded into the ERIS database, as required.

Electronic data will be managed in accordance with DOE Order 200.1 in specially designed Microsoft Excel files; these files will be compatible with site databases. An example spreadsheet that captures all information for each cylinder is shown as Figure 8-1.

8.3.2 Inventory Control

Upon excavation, each cylinder will be marked with a unique identifier that can be traced back to the location where the cylinder was unearthed. A label, tag, or other means that results in legible and long lasting marking will be used. This cylinder identification number will be used to track cylinders throughout the project.



Customer ID	Department / Contractor	Mobile / Location	Time / Description	Date / Location	Personnel / Location	Notes / Configuration	Activities / Remarks	Sample Method	Comments
0000-000-0000	Department		0000-000	0000	0000	0000			
0000-000-0000	Department		0000-000	0000	0000	0000			
0000-000-0000	Department		0000-000	0000	0000	0000			
0000-000-0000	Department		0000-000	0000	0000	0000			
0000-000-0000	Department		0000-000	0000	0000	0000			
0000-000-0000	Department		0000-000	0000	0000	0000			

Figure 8-1. Example data sheet.

The movement of materials and equipment necessary to complete the project will also be tracked. Dates and times that major pieces of equipment (i.e., track hoe, laboratory instrumentation, etc.) come into service and leave the site will be tracked.

8.4 Reports

Several reports will be generated during the performance of this project including daily, weekly, and a final report. Daily reports will serve to communicate daily status. Weekly reports will be generated providing percent complete, specific accomplishments, problems encountered, and other relevant information. A RA report including results and conclusions will be generated at the end of the project.

8.4.1 Daily Reports

Status of project activities will be communicated to project management on a daily basis. The purpose of this is to keep project management apprised of progress, issues, and to coordinate resources as needed. Reporting will typically be informal and may be performed over the telephone, in person, email, or by other means.

8.4.2 Weekly Reports

Weekly status reports will be generated as required. These reports will summarize project status, accomplishments, problems encountered, and recommended actions. The percent of project completion to date will be provided also.

8.4.3 Remedial Action (RA) Report

The remedial action process includes the preparation of at least on primary and one secondary document. The prefinal inspection report will be a secondary document that will include the following:

- Outstanding construction requirements
- Actions required to resolve items
- Completion date
- Date of final inspection (**Note:** If a final inspection is deemed to not be necessary, the prefinal inspection will be used as the final inspection.).

The prefinal inspection will be conducted by the PM, at a minimum, and possibly by an independent fourth party. All comments will be finalized in the primary RA report. To the extent possible, RA reports for individual work elements will be consolidated into a single RA report. The RA report will be prepared at the completion of remedial action and will include the following:

- A brief description of outstanding items from the prefinal inspection report
- Synopsis of work defined in the RA *Work Plan* and certification that this work was performed
- Explanation of any modifications to the RA *Work Plan*
- Certification that the remedy is operational and functional.

Documentation necessary to support a notice of completion as discussed in Part XXV of the FFA/CO (DOE-ID 1991). The documentation will be sufficient to support that no further remedial action, including institutional controls, is required.

8.5 Records and Reference Documents

The FTL will be responsible for controlling and maintaining all field documents and records and for verifying that all required documents to be submitted to the contractor ER ARDC are maintained in good condition. All entries will be made in indelible black ink. Entry errors will be corrected by drawing a single line through the error and entering the correct information. All corrections will be initialed and dated.

8.6 Training Records/Documentation

Proof that all required training courses have been completed (including applicable refresher training) must be maintained on the project at all times. Examples of acceptable written training documents include “40 Hour OSHA HAZWOPER Card,” “Respirator Authorization Card,” “Radiological Worker II Card,” “Medic/First Aid Training Card,” and/or a copy of an individual’s or department’s TRAIN System printout demonstrating completion of training. A copy of the certificate issued by the institution where the training was received is also acceptable proof of training. The radiological worker training must be documented on an official authorized card and have the designated INEEL site-specific training stamped or written on the card (unless issued prior to March 1997).

Before beginning work at the project, project-specific training will be conducted by the field CC, FTL, and/or HSO. This training will consist of a complete review of this HASP and attachments, with time for discussion and questions. Upon completing project-specific training, personnel will sign a training acknowledgement roster (Form 361.02) indicating that they have received this training, understand the tasks and associated hazards that will be conducted, and agree to follow all HASP and other safety requirements. Completed Form(s) 361.02 will be copied and maintained at the project, and the original will be sent to the ER Training Coordinator (MS 3902) within 5 working days.

If not previously completed, each 40-hour trained Hazardous Waste Operations and Emergency Response (HAZWOPER) worker must complete the HAZWOPER initial 24-hr supervised field experience training. Performance will be monitored by the FTL and/or HSO for three days of site activities for satisfactory work performance. For 24-hr trained HAZWOPER workers, the same procedure will be followed, except the supervised field experience will only last one day. Upon completion, the Field Experience Observation Checklist and Form 361.47 will be forwarded to the ER Training Coordinator (MS 3902) within 5 working days.

The FTL, HSO, and RCT, as applicable, will conduct a daily pre-job safety briefing of the task(s) to be performed that day. Pre-job briefings must be documented on Form 434.15, "Pre-Job Briefing Attendance Record" and perform requirements of Form 434.14 ("Pre-Job Briefing Checklist"). During this briefing, tasks are to be outlined, hazards identified, hazard controls and work zones established, PPE requirements discussed, and employees' questions answered. At the completion of this briefing, work control documents will be read and signed. Particular emphasis will be placed on lessons learned from the previous day's activities and how tasks can be completed in the safest, most efficient manner. All personnel will be asked to contribute ideas to enhance worker safety and mitigate potential exposures at the project.

9. REFERENCES

- 29 CFR 1910,2003, "Occupational Safety and Health Standards," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1910.120, 2003, "Hazardous waste operations and emergency response," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926, 2003, "Safety and Health Regulations for Construction," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926.50, 2003, "Medical services and first aid," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926.65, 2003, "Hazardous waste operations and emergency response," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926,150,2003, "Fire protection," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926,300,2003, "General requirements," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926,400,2003, "Introduction," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926,550,2003, "Cranes and derricks," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926,600,2003, "Equipment," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 29 CFR 1926.651,2003, "Specific excavation requirements," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 40 CFR 122.26, 2003, "Storm water discharges," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
- 40 CFR 261,2003, "Identification and Listing of Hazardous Waste," *Code of Federal Regulations*, Office of the Federal Register, July 2003.
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